BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Examine the Commission's Future Energy Efficiency Policies, Administration, and Programs.	Rulemaking 01-08-028 (Filed August 23, 2001)

ADMINISTRATIVE LAW JUDGE'S RULING ON EM&V PROTOCOL ISSUES

On August 3, 2005, pursuant to the expedited review procedures established by Decision (D.) 05-04-051, I issued a ruling soliciting comment on Joint Staff's draft proposal entitled: "Energy Efficiency Performance Basis, EM&V Model, Performance Basis Protocols and Draft EM&V Implementation Plan" (Joint Proposal).[1]

Opening comments were filed jointly by Efficiency Partnership, Runyon Saltzman & Einhorn and Staples Marketing Communications, Inc. (referred to herein as "Efficiency Partnership Coalition"), Itron, Inc., Pacific Gas and Electric Company (PG&E), Quantum Consulting, Inc., RLW Analytics, jointly by San Diego Gas & Electric Company and Southern California Gas Company, Southern California Edison Company, Skumatz Economic Research Associates, Inc., and Women Energy Matters (WEM). Reply comments were filed by PG&E and The Utility Reform Network (TURN).

[1] The text of my August 3, 2005 ruling mistakenly refers to "D.05-01-055" as the order establishing those expedited review procedures. It should be noted that D.05-04-051 is the correct decision reference, per footnote 2 of that ruling.

By way of context for my consideration of parties' comments, I briefly summarize below the rulings and Commission determinations that have lead up to Joint Staff's submittal.

1. Background

The February 6, 2004, Assigned Commissioner Ruling (ACR)[2] introduced the concept of performance basis in the context of potential performance incentives and requested staff to hold a series of workshops to address those EM&V issues most directly related to potential performance incentive design. The ACR also noted that the performance basis for energy efficiency programs designed primarily to replace more costly supply-side options (resource programs) will be different than those designed for other purposes (e.g., informational programs) and that the performance basis is needed for a range of other purposes, such as the ongoing assessment of energy savings potential, feedback and refinement of program design, as well as overall program evaluation.

In D.05-04-051[3], citing the overriding goal to place energy efficiency first in the loading order for resource procurement, the Commission concluded that the performance basis for resource programs will be net resource benefits determined by ex-post evaluation of measure installation, program participation,

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[2] Assigned Commissioner's Ruling Establishing Schedule for Addressing High Priority Issues During 2004, and Notice of Workshop on Administrative Structure (http://www.cpuc.ca.gov/PUBLISHED/RULINGS/33895.htm)

[3] Interim Opinion: Updated Policy Rules for Post-2005 Energy Efficiency and Threshold Issues Related to Evaluation, Measurement and Verification of Energy Efficiency Programs (http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/45783.htm)

program costs and kW, kWh, and therm savings. D.05-04-051 adds that in order to encourage innovative and long-term energy savings programs, the performance of the portfolio of resource programs as a whole should be the focus of evaluating performance, and any incentives or performance awards to the utility program administrators should be based on the performance of the portfolio rather than individual program performance. Additionally, evaluating the performance basis at the program level is appropriate to measure program implementer performance.[4]

Specifically addressing non-resource programs, the Commission adopted the following consensus positions in the Energy Division workshop report[5] with the expectation that Energy Division, with input from the public, would further develop each performance basis to more specifically identify outputs to be measured and evaluation methodologies.

> Audits and Targeted Information Programs to Customers: The performance basis should measure net benefits based on program participants being: a) moved to take action through a resource program; b) taking an action themselves based on the audit / targeted education program, and c) doing both of the above.
>
> Codes and Standards Advocacy and Industry Standards Programs: The performance basis should be based on a) predicted savings in case study analyses or American Society for Testing and Materials (ASTM) standards (for programs developing standards) that are presented to decision makers, and b) by how much of the recommended case study / ASTM savings are implemented in the adopted code or standard.

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[4] *Ibid.*, pp. 43-44.

[5] http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/emv+reports+and+summaries+for+workshop+series+1-3.zip

> Education / Training Programs: For schools, universities and other training programs, the performance basis should be based on: a) attitude, awareness and knowledge of students; b) reasonable impacts on energy savings or intention to act based on students' actions.
>
> Advertising and Marketing: The performance basis should be based on: a) any direct energy savings impacts attributable to the activity; b) the intention to act, if no direct impacts are possible to measure; and c) the reach of the advertising / marketing activity, the frequency of the activity and the leveraging of ancillary resources that comes from the activity.
>
> Telephone Centers and Websites: To be considered administrative costs of the programs they support

Citing specific examples, the Commission clarified that it places value on non-resource programs in the overall portfolio because of their ability to lead customers to resource programs.[6] The Commission also explained the distinction between "resource programs" and "non-resource programs," as follows:

> "[A]s reflected in Rule IV.9, what really distinguishes "resource programs" from "non-resource programs" is our ability to reasonably estimate and verify the resource savings attributable to programs that do not necessarily focus on the timing or type of resource needs of the utility. That is why our adopted Rules do not require these programs to be evaluated based on their cost-effectiveness, but rather, recognizes that 'factors and performance metrics other than the TRC and PAC Tests of cost-effectiveness' will need to be considered 'when evaluating such program proposals for funding and when evaluating their results.' [Footnote omitted.] (Rule IV.9.)

[6] *Ibid.*, p. 62.

> "Therefore, while our Rules clearly recognize that non-resource programs can add considerable value to the overall performance of the portfolio (Rule IV.6), there is—and should continue to be—a clear distinction between "resource" and "non-resource" programs even though the non-resource program may lead a customer to a resource program. The resource program is subject to cost-effectiveness evaluation during the program planning process (although passing the Dual-Test for each program is not a threshold requirement). The non-resource program is not. In addition, resource programs are subject to *ex post* EM&V true-up requirements in order to verify performance and the associated net resource savings for resource planning purposes, including the achievement of projected load impacts. At this time, we do not know what EM&V protocols will be developed to assess the performance basis of the programs listed above, including the methods for estimating and verifying associated savings where those savings can be quantified.
>
> "Therefore, we believe it is reasonable and appropriate to continue to classify the programs described in this section as "non-resource" at this time. However, we are persuaded by the comments that Joint Staff should explore whether the Codes and Standards Advocacy Program should be reclassified as a resource program during the PY2005-PY2008 planning cycle. Joint Staff should present recommendations on this issue in its EM&V protocol submittals…after carefully considering whether this program can be held up to a level of review for cost-effectiveness and associated resource savings that provide credible and objective information on savings impacts, and whether the associated protocols can produce results that meet the needs of the ISO and resource planners."[7]

By D.05-04-051, the Commission directed Joint Staff to proceed with the development of EM&V protocols and EM&V plans and budgets on a parallel track as the Commission considered the program plans, program-related funding

[7] *Ibid.*, pp. 61-64.

levels and competitive bid evaluation criteria in response to the June 1 applications in the A.05-06-004 et al. consolidated docket. For this purpose, D.05-04-051 established an expedited review process for all the interim steps leading up to the development of EM&V budgets and plans for the 2006-2008 program cycle, including the EM&V protocols discussed in that decision. Specifically, the Commission directed that all interim EM&V-related submittals be adopted via ruling by the assigned ALJ in consultation with the Assigned Commissioner in R.01-08-028, after soliciting and considering written comments from interested parties. Accordingly, today's ruling addresses the issues raised in comments on the Joint Proposal.[8]

2. Joint Proposal

The Joint Proposal is posted on the Commission's website at www.cpuc.ca.gov / static / industry / electric / energy+efficiency / rulemaking / eeevaluation.htm. It describes what types of program impacts will be evaluated over the three year (2006-2008) program cycle, and presents Joint Staff's initial thoughts on how to organize multiple evaluations across strategies, service territories, market sectors and time.

In particular, the Joint Proposal further addresses the performance basis for non-resource programs, as directed in D.05-04-051. Joint Staff clarifies that it plans to assess the performance basis for some traditional non-resource programs using net resource benefits and associated "resource program" cost-effectiveness metrics—specifically audit programs and the Codes and Standards Advocacy Programs. Joint Staff also describes its initial plans for evaluating the

[8] *Ibid.*, pp. 67-68.

effectiveness of the remaining non-resource programs, such as training and statewide mass marketing. Those plans are presented in Appendix 1 to this ruling.

The Joint Proposal also defines five general categories of evaluation studies as follows:

> **Measurement and Verification,** to verify installation and collect "operations" data for those programs likely to produce verifiable load impacts.
>
> Sample Outputs: Number of measures installed / practices adopted by customers in a specific market or sector, quality of installations, confirmation of *ex ante* assumptions related to equipment or system efficiency changes, and / or assumed hours of operation
>
> **Impact Evaluations,** for those programs likely to produce verifiable load impacts.
>
> Sample Outputs: Gross and Net impacts for one or an entire group of program strategies by service territory, estimates of savings by strategy type where feasible, explanation of why savings are different than *ex ante* estimates.
>
> **Program Effects Evaluations,** for those programs that are not likely to produce verifiable load impacts but for which other program effects must be studied.
>
> Sample Outputs: leads generated for programs, effects on general and targeted awareness of energy efficiency and particular measures, estimates of spillover benefits outside of program, both impacts if possible or market effects.
>
> **Portfolio Level Impact and Market Assessment Evaluations,** to provide estimates of the total energy efficiency effects within an entire sector, including spillover effects and an examination of changes to the market structure related to providing more efficient goods or services

Sample Outputs: Total load impacts by sector, fraction of impacts attributable to programs, synergy or scavenging between programs; specific market effects.

Overarching Studies, to provide data stores and policy support, such as updates to the Database For Energy Efficient Resources (DEER), saturation and potential studies.

Sample Outputs: Improved *ex ante* estimates of savings, NTG and load shapes in DEER, improved incremental costs, better targeting data for next cycle, estimates of remaining program potential for next goal setting process.

In addition, Joint Staff describes potential grouping of utility program activities for each type of program evaluation. The Joint Proposal includes a schematic representation of how the five types of studies would be organized on an administrative / contractual basis, and how they would feed into each other. For reference purposes in discussing parties' comments, I have reproduced this schematic in Appendix 2.

Based on the direction in D.05-05-041 regarding the performance basis for resource programs, the Joint Proposal describes all the parameters that are needed to calculate the performance basis for those programs, the recommended process to use in developing the *ex ante* estimates of the parameter value and the process to use in verifying the parameter estimate on an *ex post* (after the program is complete) basis. The description includes the frequency of verification and true-ups for these parameters. (See Appendix 3.)

3. Comments on Joint Proposal

In the following sections, I highlight the major issues raised in comments that I believe need to be addressed at this time, and indicate areas that will be worked on further by Joint Staff as part of the protocol development process or

during the preparation of EM&V plans and budgets for the 2006-2008 program cycle.

3.1 Need for Program-Level Evaluations of Energy Savings and Net Resource Benefits

The Joint Proposal indicates that Joint Staff's evaluation process will encompass program-level studies of energy savings and associated net resource benefits, where appropriate, as well as market level studies that focus on the evaluation of changes in the market. For the purpose of this ruling, I use the term "program-level evaluations" to refer to studies that estimate energy savings by verifying the actual installations of energy efficient measures and equipment funded by the program(s) and gather characteristics and billing data from a sample of participants and non-participants to estimate the net load impacts of a program or group of programs.

In its comments, Efficiency Partnership Coalition objects to any reference to program-level evaluations (as defined above) in the Joint Proposal during the 2006-2008 cycle, arguing that no individual program should be measured for direct energy savings during this stage, with possible exception of direct installation programs. Instead, Efficiency Partnership Coalition recommends that all net resource benefits evaluations be conducted on a portfolio-level basis during "stage 1" (i.e., the 2006-2008 program cycle), using methods to evaluate how overall energy savings observed in the marketplace are attributable to portfolio program strategies, including direct installation and mass-market education. TURN responds to Efficiency Partnership Coalition on this issue, arguing that energy efficiency load impacts need to be measured both from a program-by-program and portfolio perspective, as well as end-use and measure

level, in order to be used as an equivalent and comparable resource to supply-side options.

In effect, Efficiency Partnership Coalition suggests that the Commission abandon its historical practice of estimating portfolio energy savings and net resource benefits from the "bottom up" (i.e., by aggregating the results of impact evaluations conducted on the program level, or for groups of programs), and instead estimate total energy and peak savings from all the programs simultaneously on the portfolio or market level. Under this "top-down" market effects approach, one would use estimation methodologies that first evaluate changes in energy efficiency in the market (e.g., increase in deployment of efficient appliances), and then estimate the fraction of those impacts that are attributable to the activities funded through the utilities' energy efficiency portfolios.

While Efficiency Partnership Coalition raises some legitimate concerns about relying solely on a bottom-up approach to savings estimation, it ignores some significant drawbacks to relying solely on top-down market effects studies to measure portfolio-related energy savings / net resource benefits. In particular, these types of market effects studies generally require the collection of detailed data on trends in the sale of efficient products or on changes in the adoption of more efficient designs / practices to estimate total energy savings in a given market. This requires the ability to control for what would have happened to these large scale indicators in the absence of the programs and the ability to control for numerous other non-program influences, such as changes in prices, building standards, levels of output and the size of buildings.

Joint Staff informs me that it is extremely difficult to separate the signal (program savings) from the noise (changes in aggregate energy use), given that a

high proportion of the customers in any market for a given year are not participants in a program. In other words, it is difficult to directly measure savings from the relatively small proportion of customers who either participated in or were influenced by programs, and then to estimate the savings relative to what the level of aggregate energy use would have been without the program.

In addition, due to difficulties in identifying "participating customers" without the use of program participation records, market level evaluations of the type proposed by Efficiency Partnership Coalition often rely on indirect indicators of market savings related to changes in the sale of efficient equipment or changes in aggregate behavior. Estimating savings from these indirect indicators is difficult because of uncertainties in estimating what the baseline trend in either these indicators or the aggregate energy use would have been without the programs. This requires the use of complex econometric techniques to control for a number of changes independent of the changes encouraged by the programs.

Another major drawback identified by Joint Staff is that these top-down market effects studies do not readily produce estimates of net resource benefits (the value of resource savings minus program and participant costs), which is the performance metric the Commission has articulated for energy efficiency programs designed primarily to displace more costly supply side resources. Top-down market effects studies do not readily produce this metric because of difficulties in estimating what level of incremental costs were incurred by the large number of customers in the market. These types of studies will also be hard-pressed to generate results that can be attributed to a given timeframe, a given actor, or even a given region. This makes it very difficult to determine

which utility program or portfolio of programs, if any, should receive credit for the apparent savings results.

Due to these difficulties, Joint Staff reports that there are relatively few evaluations nationwide of the portfolio level impacts of a group of programs using market data alone. Instead, the generally preferred approach to evaluating load impacts and net resource benefits has been to sample the actual billing histories of a set of program participants and non-participants and use regression techniques to estimate differences in energy use with and without the program treatment. The portfolio-level savings impacts (and net resource benefits) are then derived from the sum of the program-level results.

Joint Staff has proposed an evaluation plan that utilizes a combination of evaluation approaches in order to continue to improve upon impact estimation methods. In particular, Joint Staff proposes that program level impact studies be conducted, as appropriate, to ensure that the Commission has reliable information on net savings using an established evaluation approach. In addition, program strategies' savings estimates will be grouped to guard against the possibility that savings achieved by one customer will be double counted in different evaluation studies. This will also allow the evaluator to test for interactive synergies between programs that might increase the overall level of savings beyond the "sum of the programs."

Joint Staff also intends to conduct market level studies in each major sector to attempt to capture and estimate the savings from programs not amenable to program level regressions (such as mass marketing, training or information) and any spillover effects resulting from either customers or suppliers promoting efficiency on their own without seeking program assistance. In this way, Joint Staff intends to explore whether the top-down approach is feasible and

accurate—e.g., to assess if market data can be collected that would allow evaluators to assess the impacts of all energy efficiency programs at a reasonable level of accuracy. Further, as described below, Joint Staff has developed evaluation approaches for programs that do not necessarily focus on the timing or type of resource needs of the utility, and where load impacts and resource savings cannot be reasonably estimated or verified ("non-resource programs").

I believe that Joint Staff should have the flexibility to undertake the most appropriate mix of evaluation approaches that will enable it to perform the functions and fulfill the objectives set out by the Commission with respect to evaluating the savings and net resource benefits associated with the utilities' energy efficiency portfolios. There is, and will clearly continue to be, dialog among the EM&V community over the state-of-the-art of top-down market effects studies for measuring portfolio-level savings and net resource benefits, over the pros and cons of the top-down or bottom-up approach, and over possible ways to integrate the results of various approaches for the purpose of improving the accuracy and reliability of our estimation tools. I expect that with this dialog, Joint Staff's EM&V plans will evolve over time. At this juncture, I believe that the Joint Proposal provides Joint Staff with the flexibility it requires to undertake studies that will produce reliable estimates of savings and net resource benefits.

The Joint Proposal is silent, however, on how Joint Staff intends to present the results of its evaluation efforts to the Commission for the purpose of reporting the achievement of energy savings and net resource benefits for the three-year program cycle. In particular, it is unclear from the Joint Proposal whether Joint Staff intends to (1) sum the program level impact estimates regardless of what the market level studies show and use those latter (market)

studies for prospective purposes only (e.g., to refine future portfolios or set future savings goals) or (2) use the program level estimates as the primary indicator of net resource benefits, but allow for the possibility of using the results from the market level studies to modify (upwards or downwards) the sum of reported net resource benefits using the bottom up approach. Joint Staff should clarify its intent in the next interim EM&V product ("EM&V protocols" in the EM&V roadmap), after receiving further input from its EM&V consultant and interested parties on the advantages and disadvantages of these options, and after considering what protocols would be used to integrate the two approaches if option (2) is preferred.

3.2 Performance Basis for Resource and Non-Resource Programs

Several parties object to the language (without further clarification) of the Joint Proposal that states: "Both resource programs and non-resource programs will be *evaluated* based on their own unique program objectives rather than predetermined and / or generic parameters…." (page 4, last bullet point). In response to comments, Joint Staff has indicated to me that this language was never intended to serve as an alternative to estimating load impacts, but that some evaluations may also need to evaluate unique program objectives, such as those for emerging technologies. However, Joint Staff acknowledges that the language has caused undue consternation and confusion, and proposes to simply eliminate it in any future descriptions of how it proposes to estimate performance basis.

More generally, Efficiency Partnership Coalition objects to performance basis terminology in the Joint Proposal that distinguishes between "resource" and "non-resource" programs. As discussed above, this distinction was discussed and clarified by the Commission in D.05-04-051, and I find that the

Joint Proposal uses the terms “resource “ and “non-resource” consistent with that decision.

With respect to Joint Staff’s specific proposals for evaluating a sample of non-resource programs (see Appendix 1), SDG&E / SoCalGas and SCE argue that the Advanced Home Program should be evaluated as a residential new construction program. In their view, Joint Staff should suspend judgment on whether to attempt measurement of net resource benefits until more information is available about how this new program component will operate in relationship to others. Joint Staff has informed me that they concur with this position, and will further clarify the specific outputs to be measured and associated evaluation methodologies to be used for this program in the EM&V protocols.

SCE also questions the usefulness of reviewing the 2003-2005 success rates for emerging technologies to develop an evaluation plan for these programs over the 2006-2008 program cycle, as intended by Joint Staff. (See Appendix 1.) Joint Staff should consider SCE’s comments as it develops and submits its recommended evaluation plan and budget for emerging technologies.

3.3 Proposed Approach to Measurement and Verification

Almost all of the parties commenting strongly object to Joint Staff’s proposal to separately administer / contract for “M&V” work to verify installations and collect operations data, as presented schematically in Appendix 2. They argue that this approach is not likely to produce a good match for the samples and data requirements designed by the consultants later contracted with to conduct the impact studies, market effects analyses and other evaluations. Moreover, they contend that this approach would result in customer inconvenience due to repeated contacts by different consultants. Most of the parties commenting on this issue urge Joint Staff to allow the potential

evaluation contractors to propose how M&V activities and impact evaluations can be accomplished together.

The comments of the parties have been very helpful to Joint Staff in pointing out potential downsides to separately contracting out M&V data collection and verification activities. Joint Staff assures me that they intend to carefully take the concerns and contracting suggestions articulated in the comments into consideration as they develop their project scoping and contracting process, and will carefully coordinate M&V data collection efforts with all the EM&V activities. Joint Staff should clearly reflect this coordination in the scoping of EM&V study plans and subsequent Requests For Proposals (RFPs).

3.4 Study Evaluation Groupings

The Joint Proposal presents specific lists of proposed groupings for major types of evaluation study. In general, Joint Staff proposes that the evaluations be organized according to similar program strategies or delivery mechanism. For example, Joint Staff lists a set of all program strategies represented in the utilities' program portfolios submitted on June 1 (e.g., downstream deemed rebates, upstream rebates, audits, direct install, appliance early retirement, financing, building design assistance, etc.) and then proposes options for grouping these individual strategies for load impact evaluations (e.g., residential and small commercial downstream rebates (to customers), dealers or upstream actors and financing).

The utilities are supportive of Joint Staff's proposal to use program strategies as the primary correlating variable in organizing the impact study groupings, but they and other parties observe that several of the specific groupings contained in the Joint Proposal include strategies and customer

groups with disparate characteristics. They also suggest that the Joint Proposal clarify that portfolio aggregations of portfolio impacts / market assessment evaluations will also be made by utility service territory. Efficiency Partnership Coalition suggests that groupings and references to "marketing" should include outreach. Finally, some parties suggest that the groupings will need to be revisited once the third party programs are approved for implementation.

Joint Staff has informed me that they agree with many of the observations and proposed refinements presented in parties' comments on the issue of study groupings, and plan on further refining them as part of the protocol development process.

I endorse Joint Staff's general concept of grouping programs by program strategy or delivery mechanism for the purpose of evaluating load impacts and by market sector for portfolio level impact / market assessment evaluations, but recognize (as does Joint Staff) that further refinements to the specific groupings will need to be made in the context of developing specific evaluation plans and scope of work for RFPs. Joint Staff should continue to obtain input from EM&V expertise as staff develops the groupings for all of the major study categories. Joint Staff should also retain the flexibility to refine the groupings further throughout the evaluation planning and implementation stages.

3.5 Inclusion of EM&V Process and Procedural Elements

In its comments, PG&E argues that the EM&V structure presented in the Joint Proposal is incomplete without a clear definition of the "integrated EM&V cycle" referred to in D.05-04-051, which would "indicate when studies would be completed, how they will be submitted / made available for public review, and a

description of how the resulting updated information will feed into the next energy efficiency program planning cycle and / or resource planning cycles."[9] SDG&E and SoCalGas similarly request that a schedule needs to be adopted that has specific timelines for staff EM&V study results.

In addition, PG&E suggests that the overall EM&V plan needs to include other procedural elements, such as: (1) procedures for changing EM&V requirements or protocols, (2) a schedule and process for the review of proposed EM&V studies by stakeholders or other public process, (3) exceptions for deviations from established protocols in specific instances, and (4) dispute resolution.

I have discussed these comments with Joint Staff and they inform me that this additional information will be included in the proposed EM&V protocols and / or proposed EM&V plans that are currently being developed. I remind Joint Staff that they will also need to present the schedule and process for updating DEER on a regular basis, using the results of *ex post* measurement studies, as directed by D.05-04-051.[10]

3.6 Terminology and Division of Responsibilities

In their comments, the utilities suggest that the terminology used to define the major categories of evaluation studies be modified somewhat, to minimize confusion. In particular, SCE suggests that studies of the effects of various programs on the markets they seek to influence be referred to as "market effects" studies as opposed to "market assessment" studies. (See Section 2 above.)

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[9] *Ibid.*, p. 72.

[10] *Id.*

SDG&E and SoCalGas suggest that the scope and objective for market assessment studies be clarified to include identifying remaining market potential for energy efficiency.

Joint Staff agrees that further clarification in the nomenclature used to describe the categories of studies would be useful. Joint Staff is currently considering the utilities' suggestions and developing refinements to the study categories to guide the discussion of which studies are managed by staff and which are managed by utility program administrators, consistent with the Commission's direction in D.05-01-055. These refinements should be reflected in Joint Staff's submissions of EM&V study plan details for the market sectors / strategy groupings in the coming weeks.

3.7 Estimating and Verifying Parameters Related to Net Resource Benefits Performance Basis

Appendix 3 presents Joint Staff's description of the parameters that will be needed to calculate the performance basis for resource programs, the recommended process to use in developing the *ex ante* estimates of the parameter value and the process to use in verifying the parameter estimate on an *ex post* (after the program is complete) basis. The description includes the frequency of verification and true-ups for these parameters.

In its comments, SCE takes issue with the Joint Staff proposal to true-up incremental measure costs for customized measures, arguing that there are a number of factors that complicate this process. By way of clarification, it is important to understand that "true-up" in this context really means to provide updated estimates of *ex ante* incremental measure costs based on site specific installations. There are no readily obtainable *ex ante* estimates (e.g., from DEER) of incremental measure costs for customized rebate programs, as there are for other rebate programs, prior to installation. This is because, by definition, the

program administrator or implementer is not able to anticipate what combination of customized measures will be installed under this type of rebate program at each site, prior to actual installation. As a result, for planning purposes, the utilities currently estimate the incremental measure costs of these programs as a generic percentage of total program funding, based on prior program experience. The Joint Proposal expects the utilities to track and report total incremental measure costs based on the site specific installations, and use the actual cost data to replace the portfolio level percentage estimates presented at the outset of program implementation.

I think this is a reasonable expectation. As TURN notes in its response, incremental measure costs for customized measures is a significant site- or project-specific variable that could greatly influence the net benefits calculation for the program. I expect the EM&V protocols to establish a data transfer process and general guidelines for the utilities' estimation of site specific incremental measure costs, based on best available practices.

PG&E also raises the issue of how load factor / load shape parameters can be measured and updated, but I believe this is an issue to be specifically addressed in the EM&V protocols, rather than at this juncture.

With respect to the process for establishing *ex ante* values and truing up those parameters described in Appendix 3, I note that some of these descriptions may need to be revised based on the Commission's final decision in A.05-06-004 et al. that was issued for comment on August 17, 2005. In particular, the draft decision discusses a process for updating the *ex ante* estimates of expected useful lives that are currently contained in the "E3 calculator in adopted program plans and program work papers" using recent DEER estimates of those values. It also discusses a process for updating the *ex ante* forecast of avoided costs in a manner

that differs from the process outlined in Appendix 3. Accordingly, Joint Staff may need to revise the description in Appendix 3 to reflect the Commission's final decision on these matters.

Finally I expect Joint Staff's EM&V protocol recommendations to clearly identify how frequently staff plans to produce estimates of the net resource benefits of each utility portfolio. Ideally Joint Staff would provide annual "interim" updates on the performance basis of program or the portfolio to give administrators clear feedback on program performance, but this may not be possible for some or all programs given evaluation constraints.

3.8 Other Comments

I have carefully reviewed all the comments presented by parties and have addressed those that I believe require further clarification in the context of the Joint Proposal. Others either address specific measurement methodologies that are being considered in the ongoing EM&V protocol development process, or reporting requirements that will be addressed next in the EM&V roadmap, beginning with upcoming workshops.

I note that WEM's comments do not address the Joint Proposal document, and therefore are not responsive to my ruling. Instead, WEM focuses on the discussion at the August 10 and 11 workshops related to EM&V protocol development—more specifically, on TecMarket Work's draft "Protocols for the Evaluation of Post 2005 California Energy Efficiency Programs." In particular, WEM refers to and includes its meeting notes from that workshop. I concur with PG&E that unofficial, unedited meeting notes from a single stakeholder, which purport to convey the statements and positions of other workshop participants, should not be included in filings.

IT IS RULED that:

1. Subject to the clarifications presented in today's ruling, Joint Staff's proposed performance basis for non-resource programs presented in Appendix 1 is adopted.

2. Subject to the clarifications presented in today's ruling, Joint Staff's proposed process for estimating and verifying parameters needed to calculate net resource benefits, as presented in Appendix 3, is adopted.

3. Joint Staff should proceed with the development of EM&V protocols, evaluation plans and other EM&V-related activities as directed by this ruling.

4. This ruling shall be served on the service list in this proceeding and in Application 05-06-004 et al.

Dated September 2, 2005, at San Francisco, California.

/s/ MEG GOTTSTEIN by LTC
Meg Gottstein
Administrative Law Judge

Appendix 1:
Joint Staff's Proposed Approach to Evaluating the Performance Basis For Non-Resource Programs

In the Joint Proposal, Joint Staff states that it anticipates estimating net resource benefits for audits and codes and standards programs "that used to be categorized as non resource programs." Joint Staff's initial plans to evaluate the effectiveness of the remaining non-resource programs are outlined below:

1. **Advanced Home Program** - This new program is designed to demonstrate new designs and techniques to reduce energy use of new homes. Estimates of savings from these programs are difficult because of difficulties in defining the baseload energy use pattern to be used in estimating savings and the fact that the focus of the program is to stimulate energy savings in future program years, not the current one. For this reason, we propose NOT to measure the net resource benefits from this program. Instead we will measure the effectiveness of the program in changing the "design" efficiency of new homes and later evaluate whether these designs are being adopted in the new home market. At this point, we can make a more informed judgment of whether it will be possible to estimate net savings from the program.

2. **Flex Your Power and other statewide marketing efforts** - Performing credible evaluations of general marketing programs has become more important as the budget for these programs has increased dramatically over the past 3 years (from less than $500,000 to more than $10 million dollars / year). There is no doubt that these programs have both raised general awareness of energy efficiency program efforts and increased awareness of efficiency efforts at the corporate level. What is missing so far is a credible evaluation of how these major marketing efforts have affected the level of lead generation for mainline utility programs and to what extent these efforts have stimulated citizens and businesses to make efficiency investments outside of the program framework. We propose to evaluate the impacts of these marketing efforts, both statewide and local, but we do not recommend the net resource benefits from these programs be evaluated independent of the other programs because of uncertainties associated with isolating the impacts from statewide with local marketing, and more importantly, uncertainties in isolating the impact of these messages with other factors that lead customers to invest in energy efficiency. Thus, while these programs may in fact increase the net resource benefits of the

utility portfolios, we do not intend to estimate these independently until the first evaluations of their primary impact can be completed.

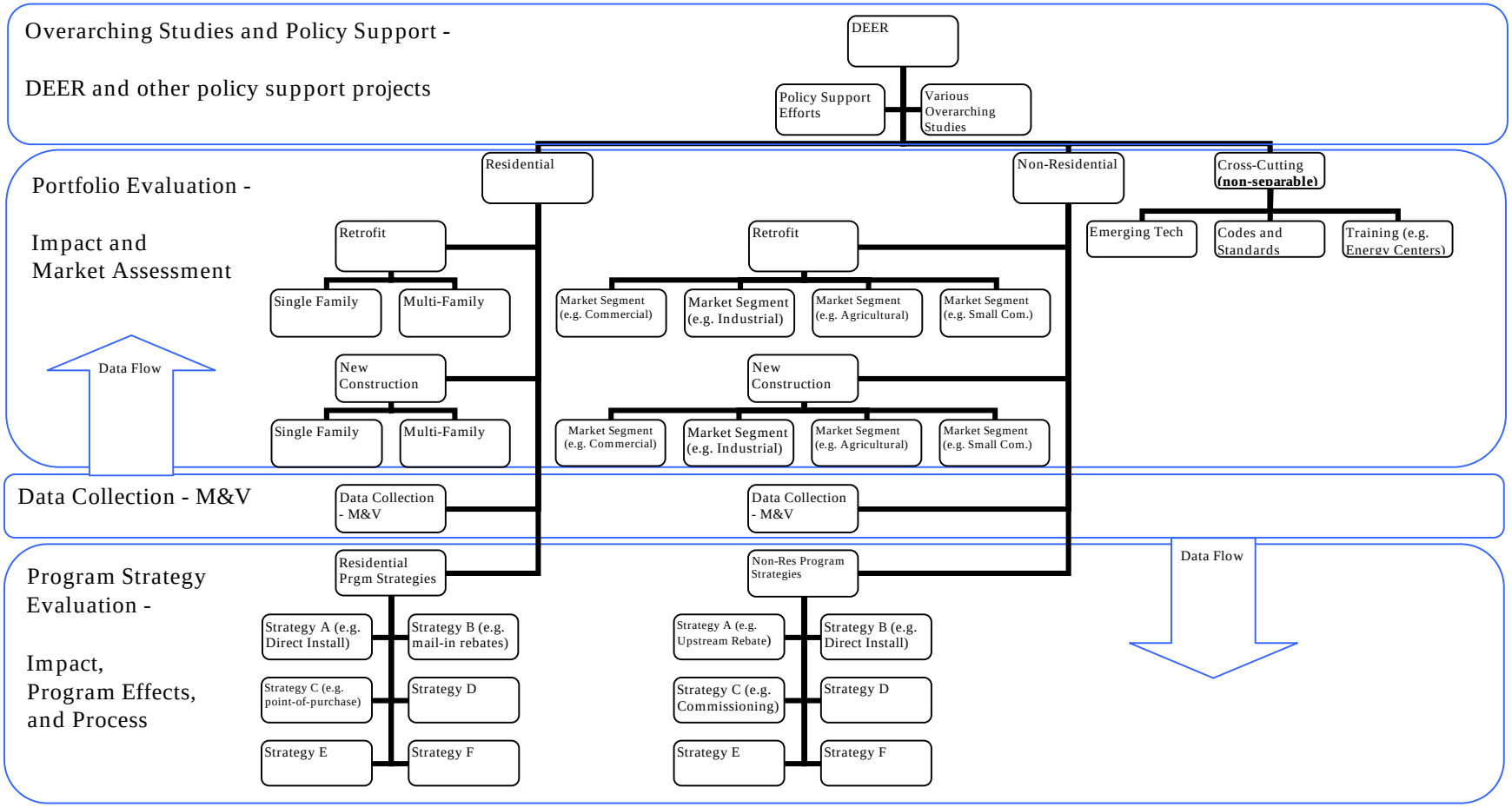
3. **General Education, Training and Outreach programs** - These programs are designed to increase the probability that trade allies will design or choose more efficient products for customers, either independently or as part of a programmatic effort. As such the link to quantifiable energy savings is more difficult to establish. Rather than making a commitment to measure net resource benefits for all programs we instead plan to develop an evaluation plan for all of these activities that first tries to evaluate the primary impacts of the programs and then secondly attempts to evaluate net energy savings using the protocols to be developed for information programs.

4. **Local Government Programs** - The mix of strategies to be used for some of these partnerships is unknown, but some partnerships have proposed to use existing rebate or design assistance programs to achieve savings. Staff will attempt to measure net resource benefits for these programs where it is feasible.

5. **Emerging Technology Programs** -The objective of these programs is to help promising efficiency concepts and products in the research and development phase bridge the valley of death to become commercially available products that can be promoted in main stream programs 3 to 6 years in the future. As such it is not practical to evaluate the net energy savings from these programs within the first three years. What can be evaluated is the long term success rate of this program strategy in incubating promising products or ideas into commercial products. We anticipate starting this evaluation process by first assessing the relative success rates of the last three years of emerging technologies in 2006 and then using these insights to develop a refined evaluation plan for the planned emerging technology programs from 2006 to 2008.

(End of Appendix 1)

APPENDIX 2:
JOINT STAFF'S PROPOSED EM&V MODEL
Figure 1: Proposed EM&V Model



(End of Appendix 2)

APPENDIX 3:
Joint Staff's Proposed Process for Estimating and Verifying Parameters Needed to Calculate Net Resource Benefits

Parameter	Source of *Ex ante* forecast	Method of updating/verifying parameter forecast	Frequency of verification and true up for Resource programs
Measure Installations or Services rendered	E3 Calculator in adopted program plans	Measurement and Verification Studies and independent review of utility tracking databases.	Annual
Commitments to Install measures in future	Program Reports	Staff or Consultant Review of Reports.	Annual
Unit Energy Savings/Unit Peak Demand Reductions	E3 Calculator in adopted program plans	Measurement & Verification and Impact Studies.	Annual interim report with final report at the end of program cycle.
Load Factors/Load Shape	E3 Calculator and Program Work papers	Portfolio Evaluation and Impact Studies.	Annual interim report with final report at the end of program cycle.
Program Costs	Adopted Program Plans, Program Budgets and Program Reports	Review of utility tracking data base and periodic third party audits.	Annual (needs to be completed within 6 months of program year ending).
Incremental Measure Cost	E3 Calculator in adopted program plans	Measure cost estimates must be based on (a) costs shown on collected customer invoices adjusted to calculate incremental measure costs, or if not available, (b) incremental costs collected and reported in the DEER or if not available, (c) incremental measure costs collected and used to conduct customer cost-effectiveness analysis.	Verification happens on spot check basis concurrent with review of other performance basis indicators.
Avoided Cost	E3 Calculator in adopted program plans	No true up required within 3 year cycle.	Expected to be updated at the next IEPR/LTRP, every 2 or 3 years.
Expected Useful Lives/Technical Degradation	E3 Calculator in adopted program plans and Program Work papers	Studies will be used on a prospective basis for future program planning.	Use *ex ante* values; no true-up within each cycle, EUL set every 3 years.
Net-to-Gross Ratio at the strategy and portfolio level	E3 Calculator in adopted program plans	Net to gross study that should estimate NTG for each strategy or combination of strategies in a market sector.	Annual interim report with final report at the end of program cycle.

This table includes the following parameters that must be trued up or provided by staff on an annual basis:

- Measure Installations and or Services delivered

- Commitments to Install Measures
- Utility Program Costs
- Incremental Measure Cost for customized measures

Program administrators have the responsibility to budget for and collect all data on program costs, measure installation and commitments on an annual basis. In addition they must provide estimates of the incremental measure cost of all measures installed or services delivered if there is no corresponding measure in the DEER data base.

The following parameters will not be trued up and changed every year, but more likely updated as part of one impact evaluation that must occur once every 3 years.

- Net load impacts per measure (energy and peak demand)
- Net to gross ratios for various strategies

The Commission expects the administrators to eventually use trued up values as the verification process proceeds over the planning cycle in their final report. As a result, utilities should use the *ex ante* values to calculate the performance basis for these programs where a true up did not take place in the prior year. In this case the utility should calculate and report an annual performance basis for that program but note that the Performance Basis is not yet verified, e.g. some of the key parameters such as unit energy savings have not yet been estimated and then trued up with the *ex ante* estimate.

At the end of the three year cycle the utility will be responsible for truing up the performance basis for all of the previous three years of programs **with the exception of the following three parameters which the commission has agreed to only use in prospective "true ups":**

- Expected useful lives or technical degradation of the measure or system installed
- Avoided costs forecast on a TDV basis.
- Incremental measure cost estimates

(End of Appendix 3)

CERTIFICATE OF SERVICE

I certify that I have by mail, this day, served the Notice of Availability of the attached Administrative Law Judge's Ruling on EM&V Protocol Issues on all parties of record in this proceeding or their attorneys of record.

Dated September 2, 2005, at San Francisco, California.

/s/ ELIZABETH LEWIS
Elizabeth Lewis

N O T I C E

Parties should notify the Process Office, Public Utilities Commission, 505 Van Ness Avenue, Room 2000, San Francisco, CA 94102, of any change of address to insure that they continue to receive documents. You must indicate the proceeding number on the service list on which your name appears.

* *

The Commission's policy is to schedule hearings (meetings, workshops, etc.) in locations that are accessible to people with disabilities. To verify that a particular location is accessible, call: Calendar Clerk (415) 703-1203.

If specialized accommodations for the disabled are needed, e.g., sign language interpreters, those making the arrangements must call the Public Advisor at (415) 703-2074, TTY 1-866-836-7825 or (415) 703-5282 at least three working days in advance of the event.